



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,274	10/09/2003	Yoshikazu Ohara	4074-8	5972
23117	7590	09/23/2004		
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			EXAMINER DICKEY, THOMAS L	
			ART UNIT 2826	PAPER NUMBER

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/681,274

Applicant(s)

OHARA, YOSHIKAZU

Examiner

Thomas L Dickey

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
4a) Of the above claim(s) 16-25 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3, 7-13 and 15 is/are rejected.
7) ☐ Claim(s) 4-6 and 14 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/09/03.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Art Unit: 2826

DETAILED ACTION

Election/Restriction

1. Applicant's election without traverse of Group II, claims 1-15 in the Paper filed 09/02/2004 is acknowledged. The requirement having been made, and applicant having elected without traverse, the requirement is hereby made final.

Applicant suggests that withdrawn claims 16-25 are obvious over elected claims 1-15. Applicant is urged not to give up so easily. With regard to claim 16 and claims dependent therefrom, the text of claims 1-15 supplies no suggestion or motivation to grind the grooves of claims 1-15 when one could just as easily etch them. With regard to claim 17 and claims dependent therefrom, the text of claims 1-15 supplies no suggestion or motivation to etch the grooves of claims 1-15 when one could just as easily grind them.

Oath/Declaration

2. The oath/declaration filed on 10/09/2003 is acceptable.

Drawings

3. The formal drawings filed on 10/09/2003 are acceptable.

Art Unit: 2826

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

5. The Information Disclosure Statement filed on 10/09/2003 has been considered.

Specification

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- A. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by KNECHT ET AL. (4,905,575).

With regard to claims 1-3 and 7, Knecht et al. discloses a semiconductor device 70 having an element forming region 71 where a semiconductor element is formed and an

Art Unit: 2826

element non-forming region 76 where no semiconductor element is formed, on a front surface of a silicon substrate 72, comprising a plurality of grooves 75 each having substantially uniform width from a bottom portion to an opening portion of that groove 75, formed parallel to each other in a portion of a rear surface of said substrate 72 corresponding to said element non-forming region 76. Note figure 6 of Knecht et al.

With regard to claims 1-3 and 8, Knecht et al. discloses a semiconductor device 80 having an element forming region 84 where a semiconductor element 81 is formed and an element non-forming region 87 where no semiconductor element is formed, on a front surface of a silicon substrate 82, comprising a plurality of grooves 85 each having a wider width in an opening portion than in a bottom portion of that groove 85, formed parallel to each other in a portion of a rear surface of said substrate 82 corresponding to said element non-forming region 87. Note figure 7 of Knecht et al.

With regard to claims 1-3 and 9, Knecht et al. discloses a semiconductor device 90 having an element forming region 94 where a semiconductor element 91 is formed and an element non-forming region 97 where no semiconductor element formed, on a front surface of a silicon substrate 92, comprising a plurality of grooves 95 having bottom portions with curved surfaces, formed parallel to each other in a portion of a rear surface of said substrate 92 corresponding to said element non-forming region 97. Note figure 8 of Knecht et al.

B. Claims 1, 11-13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by WILLIS ET AL. (5,912,427).

Art Unit: 2826

Willis et al. discloses a semiconductor device 500 having silicon substrate 501 coating the rear surface of said silicon substrate 501; a plurality of element forming regions 580 isolated from each other, where semiconductor elements are formed; and an element non-forming region 510, sandwiched between said element forming regions 580, where a semiconductor element is not formed, on a front surface of said silicon substrate 501, said semiconductor device 500 comprising a groove 503 formed in a portion of a rear surface of said substrate 501 corresponding to said element non-forming region 510. With regard to claims 13 and 15 Willis et al. further discloses a semiconductor device module comprising said semiconductor device 500, bonded to a bonding substrate 600 that is capable of being curved. Note figure 12 and column 9 lines 1-15 of Willis et al.

C. Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by SILVERBROOK (2001/0012035).

Silverbrook discloses a semiconductor device having an element forming region 3 where a semiconductor element (drive transistors, note paragraph 73) is formed and an element non-forming region 21 where no semiconductor element is formed, on a front surface of a silicon substrate 2; said semiconductor device comprising a groove 34, filled with a material 53 softer than said silicon substrate 2, formed in a portion of a rear surface of said substrate 2 corresponding to said element non-forming region 21. Note figures 16-19 and paragraphs 55,73,85,86, and 90 of Silverbrook.

Art Unit: 2826

Allowable Subject Matter

8. Claims 4-6 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TLD
09/04


Minhloan Tran
Primary Examiner
Art Unit 2826